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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Minoru Hirata

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EXAMINER

LIN, KUANG Y

ART UNIT

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1793

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/582,965	Applicant(s) HIRATA ET AL.	
	Examiner Kuang Y. Lin	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☒ Claim(s) 17 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/15/06 & 8/22/06 & 10/4/07</u> . | 6) <input type="checkbox"/> Other: ____. |

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1. The drawing is objected to in that the claimed feature of "jetting air" in claim 10 is not shown. Correction is required. Rule 1.83.
2. Applicant is requested to move the "brief description of the drawings" prior to the "preferred embodiments of the inventions" to render the specification in a better format.
3. The specification is objected to under 35 U.S.C. 112, 1st para. in that in page 18, lines 3 and 6, page 22, line 17, and page 27, line 21, the word "access" should be "approach" to render meaning definite.
4. Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, step (2), it recites inserting an upper and a lower squeeze means into openings of a pair of the upper and the lower flask having no match plate. However, in step (3), applicant failed to recite to rotate the squeeze means along with the pair of the upper and the lower flask. In step (b) of each claim of claims 6 and 7, it recites "a filling process". However, it is not clear which filling process is referred to since there is a filling process in claim 1 from which they depend.

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5. Claims 17 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim can not depend from any other multiple dependent claim. See MPEP § 608.01(n).

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/50187.

WO' 187 shows a molding machine for producing flaskless molds. The machine comprise a upper and lower flasks with a pattern plate therebetween. The flasks

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along with the pattern plate are rotatable between a horizontal position and a vertical position (see, for example, page 6, line 16+ and figures 1-10). Thus, WO '187 substantially shows the invention as claimed except that it does not show the core installation step. However, it is conventional to provide a core installation step if a cast with a hollow space is designated. With respect to claims 2 and 3, it is noted in WO '187 that since for the actuators 7, 10 for moving the squeeze plates 5 and 6, respectively, and the actuator 2a for rotation the flasks and pattern plate are operated independently to each other, it would have been obvious to operate those actuators at same time such that to speed up the molding process.

9. Claims 5-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/50187 as applied to claim 1 above, and further in view of US 6,470,953 to Hirata et al.

Hirata et al. show the concept of using segmented squeeze feet for squeeze the molding sand. The feet are placed in different heights in according to the profile of the pattern (and thus the amounts of molding sand between the respective foot and the pattern profile are different) such that the ratios of the distances between the surfaces of the patterns on the pattern plate and the lower ends of the squeeze feet before a squeezing operation is performed to those after a squeezing operation is finished can nearly equal each other (see, for example, col. 5, lines 35-48) and thereby the density of the mold within the molding frame

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can be uniform (see col. 11, lines 11-12). It would have been obvious to use the segmented squeeze feet of Hirata et al. in the process of WO '187 in view of the advantage. With respect to claims 6, 7, to fill the required amounts of molding sand between the respective foot and the pattern profile in a single filling or a two filling step is deemed to be nothing more than an obvious design choice since it does not obtain an unexpected result. With respect to claim 10, it is conventional to provide jetting air for aiding flow of sand from aeration tank through a dispensing nozzle to a molding cavity.

10. Claims 12-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/50187 as applied to claim 1 above, and further in view of US 3,589,432 to Miller et al.

WO' 187 shows a molding machine for producing flaskless molds. The machine comprise a upper and lower flasks with a pattern plate therebetween. The flasks along with the pattern plate are rotatable between a horizontal position and a vertical position (see, for example, page 6, line 16+ and figures 1-10). Thus, WO '187 substantially shows the invention as claimed except that it does not show to use two pairs of an upper and a lower flasks for making foundry mold. However, Miller et al. show (see figures 1, and 28-39) that it is conventional to use two pairs of an upper and a lower flasks for making foundry mold such that to speed up the mold making process. It would have been obvious to use two pairs of upper and a lower flasks of Miller et al. in the process of WO '187 in view of the

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advantage. With respect claim 14, it is conventional to use segmented squeezing feet as squeezing means (see for example, US 6,470,953 to Hirata et al.) With respect to claim 16, Miller et al show the use of moving means for moving the mold supporting means during mold withdrawing process (see figures 28-39). It would have been obvious to use any type of moving means to move up and down the mold supporting table as long as it will perform the designated moving function.

11. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 00/50187 in view of US 3,589,432 to Miller et al. as applied to claim 12 above, and further in view of US 4,541,476 to Larsen.

It would have been obvious to provide the molding apparatus of WO '187 with a match plate exchanging mechanism of Larsen (see col. 3, line 23 through col. 4, line 64 and figures 1 and 2) to facilitate the mold making process.

12. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

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A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

13. Claims 1-18 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-15 of copending Application No. 10/591,166. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claim language of instant application is nothing more than an obvious variation of that of copending application. With respect to claim 12-18, it is conventional to use two pairs of an upper and a lower flasks for making foundry mold such that to speed up the mold making process (see, for example, US 3,589,432 to Miller et al.)

14. This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

15. US 5,246,058 to Murata is cited to further show the state of the art.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuang Y. Lin whose telephone number is 571-272-1179. The examiner can normally be reached on Monday-Friday, 10:00-6:30,.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica L. Ward can be reached on 571-272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kuang Y. Lin/
Primary Examiner, Art Unit 1793

2-23-09